In the Claims:

1. A fixed-frequency beam-steerable leaky-wave microstrip antenna comprising:

a grounded element;

a dielectric coupled to said grounded element; and to

conducting traces coupled to the dielectric, the conducing traces including:

a pair of non-radiating conductive elements; and

a plurality of radiating strips, each of the radiating strips connected between the pair of non-radiating conductive elements, each of said plurality of radiating strips including a center-loaded varying reactance element.

2. The fixed frequency beam steerable leaky wave microstrip antenna of claim 1 wherein each of the varying reactance elements is a variable capacitor.

3. The fixed frequency beam steerable leaky wave microstrip antenna of claim 1 wherein each of the varying reactance elements is a varactor diode.

4. The fixed frequency beam steerable leaky wave microstrip antenna of claim 1 wherein the pair of non-radiating conductive elements includes:

a driving port having a first and second driving end, the first driving end configured to receive a first driving signal, the second driving end configured to receive a second driving signal, the first signal being 180 degrees-out-of-phase with the second driving signal;

a terminating port having a first terminating end and a second terminating end, the first terminating end connected to a first resistive load, the second terminating end connected to a

second terminating load.

5. The fixed frequency beam steerable leaky wave microstrip antenna of claim 4 further comprising:

a biasing DC voltage source coupled between the first terminating end and the second terminating end.

6. The fixed frequency beam steerable leaky wave microstrip antenna of claim 1 wherein each of the radiating strips has the same width, length and inter-strip spacing.

7. A fixed frequency beam steerable leaky wave microstrip antenna comprising:

a grounded element;

a dielectric coupled to said grounded element; and

a pair of radiating strips coupled to said dielectric, the pair of radiating strips separated by a generally uniform gap and including:

variable reactance elements mounted in shunt across the gap.

8. The fixed frequency beam steerable leaky wave microstrip antenna of claim 7 wherein the variable reactance elements are about the same.

9. The fixed frequency beam steerable leaky wave microstrip antenna of claim 7 wherein each of the varying reactance elements is a variable capacitor.

10. The fixed frequency beam steerable leaky wave microstrip antenna of claim 7 wherein each of the varying reactance elements is a varactor diode.

11. The fixed frequency beam steerable leaky wave microstrip antenna of claim 7 wherein the pair of radiating strips includes:

a driving port having a first and second driving end, the first driving end configured to receive a first driving signal, the second driving end configured to receive a second driving signal, the first signal being 180 degrees-out-of-phase with the second driving signal;

a terminating port having a first terminating end and a second terminating end, the first terminating end connected to a first resistive load, the second terminating end connected to a second terminating load.

12. The fixed-frequency beam-steerable leaky-wave microstrip antenna of claim 11 further comprising:

a biasing DC voltage source coupled between the first terminating end and the second terminating end.

13. A method for generating a fixed-frequency beam-steerable leaky wave from a leaky wave microstrip antenna, comprising:

providing conducting traces coupled to a dielectric, the dielectric coupled to a grounded element, the conducting traces including:

a pair of non-radiating conducting strips; and

a plurality of radiating strips, the plurality of radiating strips coupled between the

pair of non-radiating conducting strips, each of said plurality of radiating strips including:

a variable reactive-element having a reactance value;

driving the microstrip with a 180-degree hybrid fixed-frequency signal, the signal configured to excite the microstrip in a first higher order mode and configure the leaky wave antenna to transmit a beam-steerable leaky wave;

varying the variable reactive-element reactance value to provide continuous fixed frequency main beam steering.

14. The method of claim 13 wherein each of the variable reactive-elements is center loaded on each of the plurality of radiating strips.

15. The method of claim 13 wherein each of the variable reactance-elements is a varactor diode.

16. The method of claim 13 wherein each of the plurality of radiating strips is configured to have a substantially similar length, width and inter-strip spacing.

17. A method for generating a fixed-frequency beam-steerable leaky wave from a leaky-wave microstrip antenna, comprising:

providing conducting traces coupled to a dielectric, the dielectric coupled to a grounded element, the conducting traces including:

a pair of radiating strips, the pair of radiating strips separated by a generally uniform gap and including:

variable reactance-elements having a reactance value and mounted in shunt across the gap.

driving the radiating strips with a 180-degree-hybrid fixed-frequency signal, the signal configured to excite the microstrip in a first higher order mode and configure the leaky wave antenna to transmit a beam steerable leaky wave;

varying the variable reactance-element reactance value to provide continuous fixed-frequency main-beam steering.

18. The method of claim 17 wherein each of the variable reactance-elements is a varactor diode.